ABSTRACT

ANALYSIS OF ACTH LEVELS AFTER MEGADOSE METHYLPREDNISOLONE THERAPY IN PEDIATRIC PATIENTS WITH LUPUS NEPHRITIS
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Background : Recommendation for treatment of childhood lupus nephritis (LN) is a megadose methylprednisolone (MP) therapy which may cause suppressive effect on HPA axis. Megadose or pulse MP therapy is a therapy with prednisone-equivalent dosage of more 250 mg per day (maximum dose of 1000 mg MP) for few days, usually no more than 5 days. Suppression in HPA axis is characterized by a decrease of ACTH level. This effect can decline cortisol levels and may affect metabolism phase, immune response and other balance function in the body.

Objectives : To analyze ACTH levels after the use of megadose methylprednisolone in pediatric patients with lupus nephritis.

Method : The prospective observational study was conducted at period from July to September 2018 and had been approved by Ethic Committee of Dr. Soetomo Teaching Hospital Surabaya. The patients who met inclusion criteria, namely patients aged $\leq$ 18 years old diagnosed with lupus nephritis, and received megadose methylprednisolone therapy. Blood sampling were obtained at 06.00 to 10.00 a.m., then ACTH levels were measured before and after megadose methylprednisolone therapy using immunoassay method.

Result : Seventeen patients were recruited in this study consisted of 9 boys and 8 girls who were 6-18 years old. ACTH levels after the use of megadose methylprednisolone were decreased 31.8% from 22.6 ± 13.7 pg/mL to 15.4 ± 11.1 pg/mL ($p < 0.05$). However, the decline of ACTH levels had been in the normal range. Blood pressure and blood sugar profiles were also within in the normal range. Patients did not experience acute dehydration and weakness but nausea or vomiting appeared as much of 10% after the use of megadose methylprednisolone. In addition to 5% patient had developed full moon face.

Conclusion : It could be concluded that ACTH levels were decreased after megadose methylprednisolone therapy, but suppression in HPA axis did not occur.

Keywords : ACTH levels, suppression in HPA axis, megadose methylprednisolone, pulse methylprednisolone, lupus nephritis.